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ABSTRACT

A study determined the extent to which graduate students have contributed to the body of adult education knowledge through published research. It described content of graduate research articles and identified graduate programs, faculty who supported its production, and levels of graduate study involved in research publication. The study also examined the characteristics of graduate student authors. The same survey questionnaire was used for two data collections in 1979 and 1989. The 1979 survey yielded 129 responses from the population of 162 who had contributed research articles to the "Journal of Adult Education" and "Adult Education Quarterly" between 1968 and 1978. The second survey received 117 responses from 144 contributors between 1979 and 1988. A content analysis was conducted of all research articles contributed by the respondents. Nine judges assigned journal article abstracts to 14 content categories. During the first 10-year period, 47.7 percent of the articles were published by student authors as compared to 52.3 percent in the second data period. A decrease in articles from males from 77 percent to 61.2 percent corresponded to an increase in articles from females from 23 percent to 38.8 percent. The content analysis indicated that almost 80 percent of articles fell into 5 of the 14 content categories. Content distribution differed significantly by author gender. The great majority of student research was undertaken to fulfill graduate program requirements and was supervised by a faculty member. (Ten references and seven data tables are appended.) (YLB)

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The Contribution of Graduate Student Research Published in *The Journal of Adult Education/ Adult Education Quarterly*, 1969-1988

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A paper presented at the American Association for Adult and Continuing Education (AAACE) Annual Conference, Salt Lake City, Utah, October 30-Nov 2, 1990.

(This paper presents only the initial findings of the study. It is planned to submit a report with a more extensive analysis and discussion of the data to *Adult Education Quarterly*.)

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The Contribution of Graduate Student Research Published in *The Journal of Adult Education/Adult Education Quarterly*,[1] 1969-1988

In the recently emerged discipline of adult education there has been widespread agreement for many years, about the need for university graduate programs to assume a substantial role in its ongoing development. . (Kreitlow, 1960; Liveright,1964). Since the rapid expansion in numbers of university departments of adult education in the sixties (Kreitlow, 1970) many faculty members have been engaged in research as a necessary means of building a body of knowledge and in developing the research skills of graduate students. (Verner 1973; Douglah & Moss 1969). Today building knowledge, and acquiring research skills, are two indicators of scholarship for a university adult education program. Accordingly the Commission of Professors of Adult Education in *Standards for Graduate Programs in Adult Education* (AAACE 1990) identifies one important scholarly outcome of a high quality graduate program to be, "Publications in refereed journals by faculty, students and graduates."

Purpose of the Study.

The study has two major purposes. First, the study determines the extent to which graduate students have contributed to the body

[1] In 1983 the title of *The Journal of Adult Education Research* was changed to *Adult Education Quarterly*.

of adult education knowledge through published research in *Adult Education Quarterly*. Specifically the study describes the content of graduate research articles, identifies the graduate programs and the faculty who support it's production as well as the levels of graduate study involved in research publication. The study also examines the characteristics of graduate student authors. Contributors to the journal are described in terms of their gender, graduate program, motivation for undertaking research and their research dissemination activities.

Methodology.

A survey questionnaire was distributed by mail to authors who contributed research articles[2], over a twenty year period to *The Journal of Adult Education* and *Adult Education Quarterly (AEQ)* . In 1979 and 1989 one questionnaire was mailed to each author and co-author. Authors who had published more than one article received multiple copies of the questionnaire. The same questionnaire was used for the two data collections in 1979 and 1989. The first phase of the study was reported at the Adult Education Association USA annual meeting in 1979 (Lee,1979).

Survey Response Rates

The first phase of the study (completed in 1979) surveyed 162 authors who published research articles between 1969 (Vol.19) and 1978 (Vol.28). After the initial mailing, two follow-up letters were sent at two month intervals to non-respondents. There were 129

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[2] Book reviews, responses to research articles and critical essays in the Forum section were excluded.

(79.6%) questionaires returned, 19 (11.7%) authors could not be contacted and 14 (8.7%) failed to respond. As a proportion of authors who could be contacted the response rate was 90.2%. The second data collection, conducted in 1989, surveyed 144 authors who published articles between 1979 (Vol. 29) and 1988 (Vol. 38). Again two follow up letters were mailed at two month intervals to non-respondents. A search of professional association mailing lists was conducted, and university registrars and the Editors of AEQ were also contacted to obtain current addresses of authors. A total of 117 (81.2%) completed questionnaires were received, 9 (6.2%) authors could not be contacted, and 18 (12.6 %) failed to respond. The effective response rate for those contacted was 86.7%. The two data collections yielded 246 responses from the total author population of 306 and 32 authors could not be contacted. The overall effective response rate was a satisfactory 88.5%.

The study has two units of analysis: the research articles (n=128) and the graduate student authors of the articles (n=113). The analysis of the research articles focussed on the content of the research, the graduate status of the authors during the research process and the university departments which supported it. The analysis of the producers of the research, focussed on the authors' characteristics, types of progams and years of study.

Content Analysis.

A content analysis was conducted of all research articles contributed by the respondents who identified themselves as students during the research process. The units of observation for

the content analysis were 128 journal article abstracts which were assigned to 14 content categories, a 15th category "other" was available to the judges but no articles were assigned to it. These categories were used in two previous studies of articles published in Adult Education (Dickinson & Rusnell, 1971; Long & Agyekum, 1974).

Nine judges participated in the content analysis. Five were Masters degree students in a department of adult education. Two had completed their second year of full time study and three had each completed three years in the program. One judge was a community college adult educator with a Masters degree in adult education. Of the remaining judges, two were faculty members with doctoral degrees in adult education and the third was a graduate student with a completed Masters degree in adult education who had completed one year in a doctoral program.

Inter-judge reliability was determined by randomly selecting a 20% sample of the abstracts (n=25) which were categorized by all of the participating judges The extent of inter-judge agreement was computed using Scott's coefficient (Holsti, 1969). A composite reliability index of .89 was achieved indicating an acceptable level of interjudge reliability in the classification of articles to the content categories.

Study Findings - 1. The Research

The survey identified a total of 128 articles were identified as having been contributed to *The Journal of Adult Education* and *Adult Education Quarterly* by graduate student authors or co-authors, during the twenty year period under study. Seventy articles

(54.7%) were contributed by single authors, 50 (39.1%) articles were written with one other person and eight articles (6.3%) were co-authored with two other persons. Basis on author name order 27 (46.6%) of 58 co-authored articles had a graduate student as senior author and 31 (53.4%) articles had a graduate student as the junior author. . Forty articles (31.25%) had female authors and 88 (68.75%) were written by males. No significant differences were observed between male and female student contributors by number of authors per article or by author rank.

A total of 113 different graduate students contributed the 128 articles. Thirteen students were multiple authors submitting 28 articles between them. Eleven of the 13 multiple authors contributed two articles each and two students contributed three each. Twenty one of the articles submitted by the multiple author group were single author articles and seven were co-authored. Eight of the 13 member multiple author group were male and five were female.

Differences were observed with respect to the number and characteristics of student authors between the two data collection periods. During the first 10 year period (Vols 19 -28), 61 (47.7%) articles were published by student authors as compared to 67 (52.3%) in the second data period (Vols 29-38). Further, the proportion of articles from male and female contributors changed significantly with a decrease in articles from males from 47 (77%) to 41 (61.2%) and a corresponding increase in articles from females from 14 (23%) in the first period to 26 (38.8%) in the second. (Chi = 3.7, df=1, $p < .05$)

Also noteworthy was an increase in the proportion of single author articles from 31 (50.8%) in the first ten year period to 38 (57.6%) in the second and a decline in articles written by three or more authors from 6 (9.8%) to 2 (3%).

Research Content.

The results of the content analysis revealed that almost 80 per cent of the articles fell into only five of the 14 research content categories. Twenty nine (22.7%) articles were concerned with program planning and administration, 24 (18.8%) dealt with the education of particular learner groups, 17 (13.3%) focussed on adult learning, 15 (11.7%) reported research on instructional materials and methods and 14 (10.9%) articles addressed adult education as a field of study. (See Table 1)

It was observed that the content distribution of the articles differed significantly by author gender. (Chi square=13.21 , df=6 ,$p<.05$) While program planning and administration was the focus for over one quarter of the articles contributed by male authors (24: 27.2%) only 5 females (12.5%) contributed research in that category. Adult learning was the focus for one quarter of the articles of female contributors, while only 7 males (8%) contributed articles in this category. Female rather than male authors tended to submit research on the education of particular groups (22.5% v 17.1%) and adult education as a field of study (15% v 9.1%) while articles by males comprised a larger proportion of research in areas concerned with evaluation (8% v 2.5%) and international perspectives (4.5% v 0%). Articles from males were categorized in 11 of the 14 research

content categories as compared to the distribution of articles from females which were located in only 9 content categories. The 5 most popular categories of research accounted for 87.5 per cent of all articles contributed by female writers and 72.5 per cent of the articles written by males.

Origins of the research.

Three quarters of the articles originated primarily as course, thesis or dissertation requirements in their authors' graduate programs. Only 32 (25%) articles originated with research projects that were not primarily a program requirement. No differences were observed between male and female authors in this regard. An increase in articles originating from non-required research, from 11 (18.6%) articles in the first data period to 21 (31.3%) in the second was noted.

Of the 128 articles reported, 22 (17.2%) were conceptualized when the authors were enrolled in Masters degree programs and 105 (82%) by those enrolled in Doctoral programs. Table 2 presents a summary of the information which locates the graduate status of the student authors at each of the stages in the research process, for each published article. Authors were predominantly full time and part time students during the stages of the research process concerned with conceptualization of the study, data collection, and the writing of the results. A major shift in status occurred however, between the stage of writing the results of the research project when 83.6% of the authors were students and submission of the manuscript when only 35.2% were still students. At the time of

notification of acceptance of the manuscript only 27.3% of the authors were still registered as students in their graduate programs.

While a larger proportion of female authors than males were part time students in both Masters and Doctoral programs at each of the stages in the research publication process, the differences observed were not statistically significant.

Very few of the research articles published provided an opportunity for team work. Only 18 (14.1%) of the studies published required students to work with others during the data collection period and 7 projects required collaboration with only one other student. Data collection for the published research was largely a solitary experience. Ten articles (7.8%) required no data collection. For the remainder, 81 (63.3%) required six months or less to gather data and 26 (20.3%) required between seven months and one year. Data collection for twelve projects required longer than one year. Four articles (3.1%) had data collection periods of between 13 and 18 months, a further four required between 19 and 24 months and three projects required data to be collected for a period longer than two years. Slightly more articles from female (75%) than male authors (65.9%) were studies in which data collection was completed within six months or less and slightly more articles from male (23.2%) than female (19%) authors were studies which required data to be collected for between 7 and 12 months.

Only one article in five was based on a research project which provided financial support for the authors. Receipt of research funding was associated with gender. While 22 males (25%) received

funds from their research activities only three females (7.5%) derived income from their research projects. For the articles completed by single authors, 11 males (23.9%) received funding as compared to only one female (5%). Similarly with co-authored research 11 males (28.2%) received funding as compared to only two females (10.5%).

Graduate programs.

The 128 articles were published by 113 students registered in graduate programs at 41 universities. (See Table 3) However, 60 per cent of the articles were contributed by students from only nine of the 41 programs. The graduate program at the University of British Columbia (UBC) with 16 articles (12.7%) produced the largest number of graduate student publications. Together with UBC (12.7%), Rutgers (11: 8.7%), North Carolina State (10: 7.9%), and Wisconsin (10: 7.9%) accounted for almost 40 per cent of the articles.

Gender differences were observed between the universities with regard to the number of articles published. At Northern Illinois University (NIU) seven of the eight articles had female authors while not one of the six articles from students at Illinois University and not one of the ten from North Carolina State was written by a female author.

Of the 128 articles, 109 (85.2%) were studies conducted under the supervision of a research advisor. Fifty-eight (45.3%) articles were co-authored by students writing with one or two other persons. All of the 19 articles which had female co-authors were conducted under the supervision of a research advisor. Of the 39 articles which

had a male co-author 6 (15.4%) were conducted without supervision by a research advisor. Sixty four individual faculty members were identified as research supervisors. The advisors most frequently identified were Gordon Darkenwald (8: 7.5%), Gary Dickinson (8: 7.5%), Bill Griffith (6: 5.7%), Roger Boshier (4: 3.8%) and Ron Cervero (4: 3.8%). (See Table 4)

Slightly more than four out of five of the research supervisors (85: 81%) were from the discipline of adult education. Other advisor disciplines reported included education (7: 6.7%), educational psychology (3: 2.9%) and extension (3: 2.9%).

For the 109 articles supervised by research advisors, the mean number of hours of consultation provided by an advisor in a typical month, for each stage of the research process were : 4.9 hours (sd=4.2) when shaping the research problem; 4.5 hours (sd=5.7) during data collection; 5.5 hours (sd=7.3) analyzing the data; 4.7 hours (sd=4.0) writing the research report and 1.6 hours (sd=2.6) when preparing the manuscript for publication.(See table 5)

Research conducted by female authors received slightly more hours of advisor consultation than research conducted by males during the shaping of the problem and data collection stages. Considerably more hours of consultation during the data analysis stage were provided to studies with female authors (x=6.7 hrs; sd=9.9) than to those with males (x=4.8hrs; sd=5.6). Less consultation time was provided to female than male authors during the writing of the research report and the preparation of the manuscript for publication.

Of the 96 articles which originated from the requirements of graduate programs 62 (64.6%) were written by single authors and 34 (35.4%) were co-authored. Almost two thirds of all the research originating from program requirements was published by single authors. Of thirty two articles based on research that was not required for graduate study purposes, eight (25%) were written by single authors and 24 (75%) by students who were co-authors.

The major factor which influenced students to undertake a research project which was not a program requirement, was *self motivated research interest.* The mean percentage influence of author self motivation for each article was 51.7% (sd=31.2). *The chance to work with a faculty member* (x=15.2%; sd=21.0) and *access to data* (x=13.1%; sd=15.8) were two other important influences on authors. Relatively little influence was attributed to *the availability of research funds* (x=5.5%; sd=11.2). Important differences were observed between the influences reported by male and female authors.

Table 6 summarizes the respondents' reports of mean percentages of influence to conduct each non-required research project. Higher levels of influence were attributed to both *self motivated research interest* (57% v 36.4%) and *access to data* (14.5% v 10%) by male rather than female authors. However the mean percentage influences reported by female authors was higher than influences reported by males for *the chance to work with a faculty member* (23.3% v 11.5%) and the *availability of research funding* (8.9% v 4%). A slightly larger mean percentage of influence was

attributed to *other reasons* by the female authors than males (17.8% v 13%). **Study Findings - 2. The Producers of the Research.**

The 128 articles identified as graduate student research were contributed by 113 different students, thirteen students[3] having contributed more than one article each during the time that they were students. Two authors contributed three articles each and eleven authors each contributed two. Of the 28 articles submitted by the multiple contributors group, 21 were written by single authors and seven were co-authored with two of the seven having graduate students as the senior author.

The 128 articles were written by students enrolled in their graduate programs for a mean of 4.0 years (sd=1.7) with males being enrolled for slightly longer (x=4.1 yrs, sd=1.7 yrs) than the female authors (x=3.9, sd=1.6 yrs).

The survey sought information to determine whether graduate students who publish, also disseminate their research through conferences and other publications. In answer to the question, "*Was the research on which this article is based presented to a conference?*", 59 (46.1%) respondents answered affirmatively and 69 (53.9%) responded "No". A larger proportion of females (23: 57.5%) than males (36: 40.9%) indicated that they reported their research at a conference. Approximately 60 per cent of both the male and female respondents who reported their research at conferences identified

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[3] The multiple article contributors group included: Adrian Blunt, Roger Boshier, Ralph G Brockett, Ronald M Cervero, Katherine H Dimmock, Robert D Fox, Marsel A Heisel, Carol H Hoare, Sharan Merriam, Maurice L Monette, Allen B Moore, Lorys Oddi, and Thomas Valentine.

the Adult Education Research Conference (AERC) as the site where their research was presented.

Gender and the number of authors per article appeared to be related to the decision to present research at conferences. The majority of male respondents who were single authors (31: 62%) did not present their research at conferences while the majority of female single authors (13: 65%) did.

In response to the question "*Have you published other articles, related to the one listed above?*", the majority of respondents answered in the affirmative. An equal proportion of male and female respondents indicated that they had published additional related work. However, the publication productivity of the males with a mean of 2.9 articles was higher than that of the female respondents who had published a mean of 2.1 articles. Similar proprtions of male (36.2%) and female (40.9%) respondents reported publishing additional related work in *Adult Education Quarterly*. An additional 30 journals were identified by males and 13 by the female respondents as locations of their subsequent publications.

A larger proportion of single author female respondents 16 (80%) than males 29 (61.7%) published additional related research. The opposite observation was made for co-authored articles with 16 (42.1%) males publishng additional work as compared to 6 (31.6%) females who were co-authors.

Conclusions

Of the total number of articles published in *The Journal ofAdult Education* and *AEQ* over a twenty year period, approximately 45%

reflected the research and scholarly writing of graduate students. As reflected in the leading academic journal in North America, graduate student research was found to perform an important role in the advancement of a corpus of knowledge.

Because articles in AEQ are selected on a blind review basis, it can be accepted that the quality of the student research reviewed is comparable to that of all other articles published. But assessing the quality of research was not the central problem for this study. Also recognition needs to be given to the fact that co-authored work may reflect stronger faculty input and data reveals extensive faculty consultation with studies submitted by single authors.

The great majority of student research disseminated through the journal was supervised by a faculty member; was undertaken to fulfill graduate programc requirements; was not undertaken as a source of funds to support graduate study, and the data were collected in less than one year.

Important gender differences were found in several areas including the content of research articles, location of graduate program, research dissemination activity and patterns of co-authorship. These gender differences appear to reflect the gendered division of labour in adult education practice. Male graduate researchers published in areas related to planning, management and administration while female graduate researchers tended to publish in areas related to learning and program delivery.

It is clear that the organization of graduate programs influences both the conduct of graduate student inquiry and the means of making the product of the inquiry visible in the field's primary journal. The study confirms that who one studies with and where one studies does have an influence on publication productivity and hence on the contribution of graduate students to the research literature in adult education.

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TABLE 1

DISTRIBUTION OF ARTICLES BY RESEARCH CONTENT CATEGORY AND SEX OF AUTHOR

Content Category	Male		Female		Total	
	No.	%	No.	%	No.	%
Program planning & administration	24	27.2	5	12.5	29	22.7
Education of particular groups	15	17.1	9	22.5	24	18.8
Adult learning	7	8.0	10	25.0	17	13.3
Instructional materials & methods	10	11.4	5	12.5	15	11.7
Adult Education as field of study	8	9.1	6	15.0	14	10.9
Evaluation	7	8.0	1	2.5	8	6.3
Philosophy	5	5.7	2	5.0	7	5.5
Personnel & staff	5	5.7	1	2.5	6	4.7
International perspective	4	4.5	0	0.0	4	3.1
Program areas	2	2.3	0	0.0	2	1.6
Institutional sponsors	0	0.0	1	2.5	1	0.8
Organization of Adult Education	1	1.1	0	0.0	1	0.8
Labour education	0	0.0	0	0.0	0	0.0
Learning environment	0	0.0	0	0.0	0	0.0
TOTAL	88	100.0	40	100.0	128	100.0

$X^2 = 13.21$, $dF = 6$, $p < .05$

TABLE 2

DISTRIBUTION OF ARTICLES BY STEPS TO PUBLICATION AND GRADUATE STATUS OF AUTHOR

	Masters				Doctoral				Other		Total	
Step to Publicat.	FT		PT		FT		PT					
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Conceptualization	14	10.9	8	6.3	79	61.7	26	20.3	1	0.8	128	100
Data Collection	14	10.9	5	3.9	74	57.8	31	24.2	4	3.1	128	100
Writing Results	10	7.8	6	4.7	61	47.7	30	23.4	21	16.4	128	100
Submission	4	3.1	3	2.3	23	18.0	15	11.7	83	64.8	128	100
Notification	2	1.6	3	2.3	18	14.1	12	9.4	93	72.7	128	100

TABLE 3

DISTRIBUTION OF ARTICLES BY UNIVERSITY AND SEX OF AUTHOR

University	Male		Female		Total	
	No.	%	No.	%	No.	%
British Columbia	10	11.4	6	15.0	16	12.7
Rutgers	5	5.7	6	15.0	11	8.7
North Carolina State	10	11.4	0	0.0	10	7.9
Wisconsin	7	8.0	3	7.5	10	7.9
Northern Illinois	1	1.1	7	17.5	8	6.3
Chicago	6	6.8	1	2.5	7	5.5
Illinois	6	6.8	0	0.0	6	4.7
Florida State	3	3.4	1	2.5	4	3.1
Georgia	2	2.3	2	5.0	4	3.1
Other	38	43.1	14	30.0	52	40.1
TOTAL	88	100.0	40	100.0	128	100.0

TABLE 4

DISTRIBUTION OF ARTICLES BY RESEARCH ADVISOR AND SEX OF AUTHOR

Advisor	Male		Female		Total	
	No.	%	No.	%	No.	%
Gary Dickinson	6	8.6	2	5.0	8	7.5
Gordon Darkenwald	3	4.3	4	10.0	7	6.5
Bill Griffith	6	8.6	0	0.0	6	5.7
Roger Boshier	1	1.4	3	7.5	4	3.8
Ron Cervero	0	0.0	4	10.0	4	3.8
Arden Grotelueschen	3	4.3	0	0.0	3	2.8
Huey Long	2	2.9	1	2.5	3	2.8
Wayne Schroeder	2	2.9	1	2.5	3	2.8
Bob Smith	1	1.4	2	5.0	3	2.8
Others	46	65.6	21	57.5	67	62.5
Total[1]	70	100.0	39	100.0	109	100.0

[1]Excluded from this table are 19 articles, 14.8% of the study sample, which were based on research conducted without a faculty advisor.

TABLE 5

HOURS PER AVERAGE MONTH OF RESEARCH ADVISOR CONSULTATION PER ARTICLE[1] BY STEP IN RESEARCH PROCESS AND SEX OF AUTHOR

Consultation	Hours per average month					
	Male		Female		Total	
	$\bar{x}$	sd.	$\bar{x}$	sd.	$\bar{x}$	sd.
Shaping problem	4.8	4.2	5.1	4.4	4.9	4.2
Collecting data	4.3	5.7	4.7	5.8	4.5	5.7
Analysing data	4.8	5.6	6.7	9.9	5.5	7.3
Writing report	4.8	4.0	4.5	4.2	4.7	4.0
Preparing ms.	1.9	3.0	0.9	1.4	1.6	2.6

M n = 70, F n = 39, T n = 109

[1] Articles n = 109

TABLE 6

PERCENTAGE INFLUENCE OF FACTORS CONTRIBUTING TO REASON FOR UNDERTAKING NON REQUIRED[1] RESEARCH BY FACTOR AND SEX OF AUTHOR

	Percentage Influence					
	Male		Female		Total	
	$\bar{x}$	sd.	$\bar{x}$	sd.	$\bar{x}$	sd.
Self motivated interest	57.0	28.0	40.0	36.4	51.7	31.2
To work with faculty member	11.5	18.1	23.3	25.5	15.2	21.0
Access to data	14.5	15.4	10.0	17.3	13.1	15.8
Funding available	4.0	9.4	8.9	14.5	5.5	11.2
Other	13.0	6.9	17.8	22.2	14.5	28.1
TOTAL	100.0		100.0		100.0	

[1]Articles n = 19

TABLE 7

DISTRIBUTION OF GRADUATE STUDENT AUTHORS BY UNIVERSITY AND SEX

University	Male No.	Male %	Female No.	Female %	Total No.	Total %
British Columbia	9	11.4	6	17.7	15	13.4
Wisconsin	7	8.8	3	8.9	10	8.8
North Carolina State	8	10.1	0	0.0	8	7.1
Rutgers	4	5.1	4	11.8	8	7.1
Illinois	6	7.6	0	0.0	6	5.3
Chicago	4	5.1	1	2.9	5	4.4
Northern Illinois	1	1.3	4	11.8	5	4.4
Florida State	3	3.8	1	2.9	4	3.5
Georgia	2	2.5	2	5.9	4	3.5
Other	35	44.3	13	38.3	48	42.5
TOTAL	79	100.0	34	100.0	113	100.0